

## AMENDMENTS TO THE CLAIMS

**This listing of claims will replace all prior versions and listings of claims in the application:**

### **LISTING OF CLAIMS:**

1. (currently amended): A method for setting a firing temperature of cerium carbonate which is to be fired to produce a cerium oxide abrasive having a specific surface  $S$ , wherein the cerium carbonate has a fluorine content falling within a range of 10 to 500 ppm by mass, said method comprising the steps of:

(a) previously obtaining the following formula:

$$T = (700 + A) - B[\log (F)]$$

where  $T$  denotes the firing temperature ( $^{\circ}\text{C}$ ) of cerium carbonate to be fired,  $F$  denotes the fluorine content (ppm by mass) of cerium carbonate to be fired, and  $A$  and  $B$  are constants inherent to a firing furnace and a temperature elevation condition used in said firing, said constants  $A$  and  $B$  being obtained from the following formulae:

$$T1 = (700 + A) - B[\log (F1)]$$

$$T2 = (700 + A) - B[\log (F2)]$$

where  $T1$  and  $F1$ , and  $T2$  and  $F2$ , are two sets of firing temperatures ( $^{\circ}\text{C}$ ) and fluorine contents (ppm by mass), respectively, of two cerium carbonates different in fluorine content  $F1$  and  $F2$ , in which said firing temperatures  $T1$  and  $T2$  are any two firing temperatures that allow to obtain cerium oxide having a specific surface area  $S$  in a range of 9.5 to 12.2  $\text{m}^2/\text{g}$  in a predetermined firing furnace under predetermined conditions~~a relationship between fluorine~~

~~content f of cerium carbonate and firing temperature t for the cerium carbonate having fluorine content f which firing temperature t provides a cerium oxide abrasive having specific surface area S, for a firing furnace and firing conditions, and~~

(b) calculating the firing temperature T of cerium carbonate to be fired, said cerium carbonate having known fluorine content F, by inserting fluorine content F of said cerium carbonate to be fired into said formula of  $T = (700 + A) - B [\log (F)]$  in which

constants A and B have been determined in the step (a); and

(c) setting the firing temperature T of said cerium carbonate to be fired for in said predetermined firing furnace and said firing conditions, wherein said firing temperature T is 690 to 780°C to firing temperature  $t_1$ , said cerium carbonate to be fired having fluorine content  $f_1$ , said firing temperature  $t_1$  being derived from said previously obtained relationship wherein the fluorine content f is fluorine content  $f_1$ .

2. (canceled).

3. (withdrawn): A method for producing a cerium oxide abrasive comprising firing a raw material of cerium carbonate, in which the temperature of said firing is set in accordance with the method as set forth in claim 1 or 2.

4. (withdrawn): A method for producing a cerium oxide abrasive, characterized in that the method comprises firing a raw material of cerium carbonate having a fluorine content F (ppm by mass) falling within a range of 10 to 500 ppm by mass, at a firing temperature T (°C) selected within a temperature range defined by the following formula:

$$730 - 14[\log(F)] \leq T \leq 790 - 10[\log(F)].$$

5. (withdrawn): The method for producing a cerium oxide abrasive according to claim 3 , wherein the cerium carbonate has a fluorine content falling within a range of 50 to 300 ppm by mass.
6. (withdrawn): The method for producing a cerium oxide abrasive according to claim 3, further comprising removing soluble fluorine from the cerium oxide abrasive.
7. (withdrawn): Cerium oxide abrasive lots produced through the method as set forth in claim 3, wherein the cerium oxide abrasive lots contain soluble fluorine in an amount falling within a range of 20 to 1000 ppm by mass based on the mass of the cerium oxide.
8. (withdrawn): The cerium oxide abrasive lots according to claim 7, wherein the cerium oxide abrasive lots comprise cerium oxide abrasives having a specific surface area falling within a range of 9.5 to 12.2 m<sup>2</sup>/g.
9. (withdrawn): A cerium oxide abrasive slurry comprising cerium oxide, water and a dispersant capable of dispersing cerium oxide, wherein said cerium oxide is obtained from the cerium oxide abrasive lots as set forth in claim 7 .

10. (withdrawn): A method for producing a cerium oxide abrasive slurry, comprising the method for producing a cerium oxide abrasive as set forth in claim 3.

11. (withdrawn): The method for producing a cerium oxide abrasive according to claim 4, wherein the cerium carbonate has a fluorine content falling within a range of 50 to 300 ppm by mass.

12. (withdrawn): The method for producing a cerium oxide abrasive according to claim 4, further comprising removing soluble fluorine from the cerium oxide abrasive.

13. (withdrawn): Cerium oxide abrasive rods produced through the method as set forth in 4, wherein the cerium oxide abrasive rods contain soluble fluorine in an amount falling within a range of 20 to 1000 ppm by mass based on the mass of the cerium oxide.

14. (canceled).